



Docket No.: M4065.0704/P704
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Kristy A. Campbell et al.

Application No.: 09/943,199

Confirmation No.: 8508

Filed: August 29, 2001

Art Unit: 2818

For: **METHOD OF FORMING NON-VOLATILE RESISTANCE VARIABLE DEVICES**

Examiner: D. Vu

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement accompanies the Request for Continued Examination (RCE) submitted herewith.

A copy of each reference on the PTO/SB/08 is attached.

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. In accordance with 37 CFR 1.97(h), the filing of this Information Disclosure statement shall not be construed to be an

admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

It is submitted that the Information Disclosure Statement is in compliance with 37 CFR 1.98 and the Examiner is respectfully requested to consider the listed references.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1073, under Order No. M4065.0704/P704. A duplicate copy of this paper is enclosed.

Dated: September 9, 2004

Respectfully submitted,

By _____

Thomas J. D'Amico

Registration No.: 28,371

Peter McGee

Registration No.: 35,947

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Attorneys for Applicant



bunter

U. S. PATENT AND TRADEMARK OFFICE U. S. DEPARTMENT OF COMMERCE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				<i>Complete if Known</i>	
				Application Number	09/943,199
				Filing Date	August 29, 2001
				First Named Inventor	Kristy A. Campbell
				Art Unit	2818
				Examiner Name	D. Vu
Sheet	1	of	5	Attorney Docket Number	

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
AA	2002/0000666	1/3/2002	Kozicki et al.		
AB	2002/0072188	6/13/2002	Gilton		
AC	2002/0106849	08/08/2002	Moore		
AD	2002/0123169	09/05/2002	Moore et al.		
AE	2002/0123170	09/05/2002	Moore et al.		
AF	2002/0123248	09/05/2002	Moore et al.		
AG	2002/0127886	09/12/2002	Moore et al.		
AH	2002/0132417	09/09/2002	Li		
AI	2002/0160551	10/31/2002	Harshfield		
AJ	2002/0163828	11/07/2002	Krieger et al.		
AK	2002/0168820	11/2002	Kozicki		
AL	2002/0168852	11/2002	Kozicki		
AM	2002/0190289	12/19/2002	Harshfield et al.		
AN	2002/0190350	12/19/2002	Kozicki et al.		
AO	2003/0001229	01/02/2003	Moore et al.		
AP	2003/0027416	02/06/2003	Moore		
AQ	2003/0032254	02/13/2003	Gilton		
AR	2003/0035314	02/20/2003	Kozicki		
AS	2003/0035315	02/20/2003	Kozicki		
AT	2003/0038301	02/27/2003	Moore		
AU	2003/0043631	03/06/2003	Gilton et al.		
AV	2003/0045049	3/2003	Campbell et al.		
AW	2003/0045054	3/2003	Campbell et al.		
AX	2003/0047765	03/13/2003	Campbell		
AY	2003/0047772	03/13/2003	Li		
AZ	2003/0047773	03/13/2003	Li		
AA1	2003/0048519	03/13/2003	Kozicki		
AB1	2003/0048744	3/2003	Ovshinsky et al.		
AC1	2003/0049912	03/13/2003	Campbell et al.		
AD1	2003/0068861	4/2003	Li et al.		
AE1	2003/0068862	4/2003	Li et al.		
AF1	2003/0095426	05/22/2003	Hush et al.		
AG1	2003/0096497	5/2003	Moore et al.		
AH1	2003/0107105	6/2003	Kozicki		
AI1	2003/0117831	06/26/2003	Hush		
AJ1	2003/0128612	07/10/2003	Moore et al.		
AK1	2003/0137869	07/24/2003	Kozicki		
AL1	2003/0143782	07/31/2003	Gilton et al.		
AM1	2003/0155589	08/21/2003	Campbell et al.		
AN1	2003/0155606	08/21/2003	Campbell et al.		
AO1	2003/0156447	08/21/2003	Kozicki		
AP1	2003/0156463	08/21/2003	Casper et al.		
AQ1	2003/0209728	11/13/2003	Kozicki et al.		

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(use as many sheets as necessary)

				<i>Complete if Known</i>	
				Application Number	09/943,199
				Filing Date	August 29, 2001
				First Named Inventor	Kristy A. Campbell
				Art Unit	2818
				Examiner Name	D. Vu
Sheet	2	of	5	Attorney Docket Number	M4065.0704/P704

AR1	2003/0209971	11/13/2003	Kozicki et al.
AS1	2003/0210564	11/13/2003	Kozicki et al.
AT1	2003/0212724	11/2003	Ovshinsky et al.
AU1	2003/0212725	11/2003	Ovshinsky et al.
AV1	2004/0035401	2/2004	Ramachandran et al.
AW1	RE 37,259E	7/2001	Ovshinsky
AX1	3,271,591	9/1966	Ovshinsky
AY1	3,961,314	6/1976	Klose et al.
AZ1	3,966,317	6/1976	Wacks et al.
AA2	3,983,542	11/1976	Ovshinsky
AB2	3,988,720	10/1976	Ovshinsky
AC2	4,177,474	12/1979	Ovshinsky
AD2	4,267,261	5/1981	Hallman et al.
AE2	4,316,946	1/1982	Masters, et al.
AF2	4,597,162	7/1986	Johnson et al.
AG2	4,608,296	8/1986	Keem et al.
AH2	4,637,895	1/1987	Ovshinsky et al.
AI2	4,646,266	2/1987	Ovshinsky et al.
AJ2	4,664,939	5/1987	Ovshinsky
AK2	4,668,968	5/1987	Ovshinsky et al.
AL2	4,670,763	6/1987	Ovshinsky et al.
AM2	4,671,618	06/09/1987	Wu et al.
AN2	4,673,957	6/1987	Ovshinsky et al.
AO2	4,678,679	7/1987	Ovshinsky
AP2	4,696,758	9/1987	Ovshinsky et al.
AQ2	4,698,234	10/1987	Ovshinsky et al.
AR2	4,710,899	12/1987	Young et al.
AS2	4,728,406	3/1988	Banerjee et al.
AT2	4,737,379	4/1988	Hudgens et al.
AU2	4,766,471	8/1988	Ovshinsky et al.
AV2	4,769,338	9/1988	Ovshinsky et al.
AW2	4,775,425	10/1988	Guha et al.
AX2	4,788,594	11/1988	Ovshinsky et al.
AY2	4,800,526	01/24/1989	Lewis
AZ2	4,809,044	2/1989	Pryor et al.
AA3	4,818,717	4/1989	Johnson et al.
AB3	4,843,443	6/1989	Ovshinsky et al.
AC3	4,845,533	7/1989	Pryor et al.
AD3	4,853,785	8/1989	Ovshinsky et al.
AE3	4,891,330	1/1990	Guha et al.
AF3	5,128,099	7/1992	Strand et al.
AG3	5,159,661	10/1992	Ovshinsky et al.
AH3	5,166,758	11/1992	Ovshinsky et al.
AI3	5,272,359	12/21/1993	Nagasubramanian et al.
AJ3	5,296,716	3/1994	Ovshinsky et al.
AK3	5,314,772	5/24/1994	Kozicki
AL3	5,335,219	8/1994	Ovshinsky et al.
AM3	5,341,328	8/1994	Ovshinsky et al.
AN3	5,359,205	10/1994	Ovshinsky



Substitute for form 1449A/PTO

INFORMATION DISCLOSURE
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				Complete If Known	
Sheet	3	of	5	Application Number	09/943,199
				Filing Date	August 29, 2001
				First Named Inventor	Kristy A. Campbell
				Art Unit	2818
				Examiner Name	D. Vu
				Attorney Docket Number	M4065.0704/P704

AO3	5,406,509	4/1995	Ovshinsky et al.
AP3	5,414,271	5/1995	Ovshinsky et al.
AQ3	5,534,711	7/1996	Ovshinsky et al.
AR3	5,534,712	7/1996	Ovshinsky et al.
AS3	5,536,947	7/1996	Kiersy et al.
AT3	5,543,737	8/1996	Ovshinsky
AU3	5,591,501	1/1997	Ovshinsky et al.
AV3	5,596,522	1/1997	Ovshinsky et al.
AW3	5,687,112	11/1997	Ovshinsky
AX3	5,694,054	12/1997	Ovshinsky et al.
AY3	5,714,768	2/1998	Ovshinsky et al.
AZ3	5,814,527	9/29/1998	Wolstenholme et al
AA4	5,818,749	10/06/1998	Harshfield
AB4	5,825,046	10/1998	Czubatyj et al.
AC4	5,851,882	12/22/1998	Harshfield
AD4	5,869,843	2/9/1999	Harshfield
AE4	5,912,839	6/1999	Ovshinsky et al.
AF4	5,933,365	8/1999	Kiersy et al.
AG4	6,011,757	1/2000	Ovshinsky
AH4	6,031,287	2/29/2000	Harshfield
AI4	6,072,716	06/06/2000	Jacobson et al.
AJ4	6,087,674	7/2000	Ovshinsky et al.
AK4	6,141,241	10/2000	Ovshinsky et al.
AL4	6,339,544	1/2002	Chiang et al.
AM4	6,404,665	6/2002	Lowery et al.
AN4	6,429,064	8/2002	Wicker
AO4	6,437,383	8/2002	Xu
AP4	6,440,837	8/27/2002	Harshfield
AQ4	6,462,984	10/2002	Xu et al.
AR4	6,473,332	10/2002	Ignatiev et al.
AS4	6,480,438	11/2002	Park
AT4	6,487,106	11/26/2002	Kozicki
AU4	6,487,113	11/2002	Park et al.
AV4	6,501,111	12/2002	Lowery
AW4	6,507,061	1/2003	Hudgens et al.
AX4	6,511,862	1/2003	Hudgens et al.
AY4	6,511,867	1/2003	Lowery et al.
AZ4	6,512,241	1/2003	Lai
AA5	6,514,805	2/2003	Xu et al.
AB5	6,531,373	3/2003	Gill et al.
AC5	6,534,781	3/2003	Dennison
AD5	6,545,287	4/2003	Chiang
AE5	6,545,907	4/2003	Lowery et al.
AF5	6,555,860	4/2003	Lowery et al.
AG5	6,563,164	5/2003	Lowery et al.
AH5	6,566,700	5/2003	Xu
AI5	6,567,293	5/2003	Lowery et al.
AJ5	6,569,705	5/2003	Chiang et al.
AK5	6,570,784	5/2003	Lowery

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet

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		Complete if Known	
		Application Number	09/943,199
		Filing Date	August 29, 2001
		First Named Inventor	Kristy A. Campbell
		Art Unit	2818
		Examiner Name	D. Vu
		Attorney Docket Number	M4065.0704/P704

AL5	6,576,921	6/2003	Lowery	
AM5	6,586,761	7/2003	Lowery	
AN5	6,589,714	7/2003	Maimon et al.	
AO5	6,590,807	7/2003	Lowery	
AP5	6,593,176	7/2003	Dennison	
AQ5	6,597,009	7/2003	Wicker	
AR5	6,605,527	8/2003	Dennison et al.	
AS5	6,613,604	9/2003	Maimon et al.	
AT5	6,621,095	9/2003	Chiang et al.	
AU5	6,625,054	9/2003	Lowery et al.	
AV5	6,642,102	11/2003	Xu	
AW5	6,646,297	11/2003	Dennison	
AX5	6,649,928	11/2003	Dennison	
AY5	6,667,900	12/2003	Lowery et al.	
AZ5	6,671,710	12/2003	Ovshinsky et al.	
AA6	6,673,648	1/2004	Lowrey	
AB6	6,673,700	1/2004	Dennison et al.	
AC6	6,674,115	1/2004	Hudgens et al.	
AD6	6,687,153	2/2004	Lowery	
AE6	6,687,427	2/2004	Ramalingam et al.	
AF6	6,690,026	2/2004	Peterson	
AG6	6,696,355	2/2004	Dennison	
AH6	6,707,712	3/2004	Lowery	
AI6	6,714,954	3/2004	Ovshinsky et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document		Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY			
BA	56126916		10/19981	Akira et al.		
BB	WO 97/48032		12/18/1997	Kozicki et al.		
BC	WO 99/28914		06/10/1999	Kozicki et al.		
BD	WO 00/48196		08/17/2000	Kozicki et al.		
BE	WO 02/21542		03/14/2002	Kozicki et al.		

Examiner Signature	Date Considered
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant

¹Applicant's unique citation designation number (optional). ²See attached Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the application number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

The PTO did not receive the following listed Items(s) FOR - FROM - BA to BE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet

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of

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<i>Complete if Known</i>	
Application Number	09/943,199
Filing Date	August 29, 2001
First Named Inventor	Kristy A. Campbell
Group Art Unit	2818
Examiner Name	D. Vu
Attorney Docket Number	M4065.0704/P704

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	CA	Kawamoto, Y., Nishida, M., Ionic Condition in As ₂ S ₃ —Ag ₂ S, GeS ₂ —GeS—Ag ₂ S and P ₂ S ₅ -Ag ₂ S Glasses, J. Non-Cryst Solids 20(1976) 393-404.	
	CB	Kozicki et al., Silver incorporation in thin films of selenium rich Ge-Se glasses, International Congress on Glass, Volume 2, Extended Abstracts, July 2001, pgs. 8-9.	
	CC	Michael N. Kozicki, 1. Programmable Metallization Cell Technology Description, February 18, 2000	
	CD	Michael N. Kozicki, Axon Technologies Corp. and Arizona State University, Presentation to Micron Technology, Inc., April 6, 2000	
	CE	Kozicki et al., Applications of Programmable Resistance Changes In Metal-Doped Chalcogenides, Electrochemical Society Proceedings, Volume 99-13, 1999, pgs. 298-309.	
	CF	Kozicki et al., Nanoscale effects in devices based on chalcogenide solid solutions, Superlattices and Microstructures, Vol. 27, No. 516, 2000, pgs. 485-488.	
	CG	Kozicki et al., Nanoscale phase separation in Ag-Ge-Se glasses, Microelectronic Engineering 63 (2002) pgs 155-159.	
	CH	Mitkova, M.; Wang, Y.; Boolchand, P., Dual chemical role of Ag as an additive in chalcogenide glasses, Phys. Rev. Lett. 83 (1999) 3848-3851.	
	CI	Miyatani, S.-y., Electrical properties of Ag ₂ Se, J. Phys. Soc. Japan 13 (1958) 317.	

Examiner Signature	Date Considered
--------------------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.



Docket No.: M4065.0704/P704
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Kristy A. Campbell et al.

Application No.: 09/943,199

Group Art Unit: 8508

Filed: August 29, 2001

Examiner: David Vu

For: METHOD OF FORMING
CHALCOGENIDE COMPRISING DEVICE

Allowed: June 18, 2004

REQUEST FOR ACKNOWLEDGEMENT OF REFERENCES CITED

U.S. Patent and Trademark Office
220 20th Street S.
Customer Window, Mail Stop Issue Fee
Crystal Plaza Two, Lobby, Room 1B03
Arlington, Va 222-22

Dear Sir:

Applicant's undersigned representatives respectfully request that the Examiner acknowledge the references cited on two sets of PTO-1449 Forms originally filed on February 4, 2002 and November 20, 2002. A copy of the original submissions along with copies of the PTO stamped postcard receipts, are being filed herewith for your convenience.

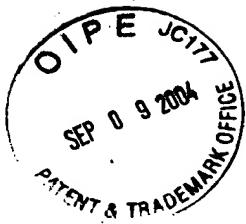
Dated: September 9, 2004

Respectfully submitted,

By 
Thomas J. D'Amico

Registration No.: 28,371
Salvatore P. Tamburo

Registration No.: 45,153
DICKSTEIN SHAPIRO MORIN &
OSHINSKY LLP
2101 L Street NW
Washington, DC 20037-1526
(202) 785-9700
Attorneys for Applicant



MI22-1672 (MSM) Dated: December 5, 2001
Micron Technology, Inc.

The stamp of the U.S. Patent and Trademark Office acknowledges receipt of the following papers relating to the Patent application of Kristy A. Campbell, et al., Serial No. 09/943,199, filed August 29, 2001, entitled "Method of Forming Non-Volatile Resistance Variable Devices".

1. PTO Return Postcard Receipt;
2. Transmittal Form (PTO/SB/21);
3. Supplemental Information Disclosure Statement, Form 1449 and cited reference.

MI22-1672

MI22-1672 (MSM) Dated: December 5, 2001
Micron Technology, Inc.

The stamp of the U.S. Patent and Trademark Office acknowledges receipt of the following papers relating to the Patent application of Kristy A. Campbell, et al., Serial No. 09/943,199, filed August 29, 2001, entitled "Method of Forming Non-Volatile Resistance Variable Devices".

1. PTO Return Postcard Receipt;
2. Transmittal Form (PTO/SB/21);
3. Supplemental Information Disclosure Statement, Form 1449 and cited reference.

J1131 U.S. PTO



02/04/02



Please type a plus sign (+) inside this box →

Approved for use through 09/30/2000. OMB 0651-0031
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

		Application Number	09/943,199
		Filing Date	August 29, 2001
		First Named Inventor	Kristy A. Campbell
		Group Art Unit	2818
		Examiner Name	Unassigned
Total Number of Pages in This Submission		Attorney Docket Number MI22-1672	

ENCLOSURES (check all that apply)

<input type="checkbox"/> Fee Transmittal Form	<input type="checkbox"/> Assignment Papers (for an Application)	<input type="checkbox"/> After Allowance Communication to Group
<input type="checkbox"/> Fee Attached	<input type="checkbox"/> Drawing(s)	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
<input type="checkbox"/> Amendment / Response	<input type="checkbox"/> Licensing-related Papers	<input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief)
<input type="checkbox"/> After Final	<input type="checkbox"/> Petition Routing Slip (PTO/SB/69) and Accompanying Petition	<input type="checkbox"/> Proprietary Information
<input type="checkbox"/> Affidavits/declaration(s)	<input type="checkbox"/> Petition to Convert to a Provisional Application	<input type="checkbox"/> Status Letter
<input type="checkbox"/> Extension of Time Request	<input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address	<input checked="" type="checkbox"/> Additional Enclosure(s) (please identify below):
<input type="checkbox"/> Express Abandonment Request	<input type="checkbox"/> Terminal Disclaimer	<input type="checkbox"/> PTO return receipt postcard
<input checked="" type="checkbox"/> Supplemental Information Disclosure Statement	<input type="checkbox"/> Small Entity Statement	Form 1449, cited ref.
<input type="checkbox"/> Certified Copy of Priority Document(s)	<input type="checkbox"/> Request for Refund	
<input type="checkbox"/> Response to Missing Parts/ Incomplete Application		
<input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53		
Remarks		Customer No. 021567
The Commissioner is hereby authorized to charge any additional fees required under 37 CFR Sections 1.16 and 1.17 and credit any overpayments to: 23-0925.		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Mark S. Matkin; Wells, St. John, Roberts, Gregory & Matkin
Signature	
Date	12-5-01

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on this date:

Typed or printed name	Rebecca Joyce	
Signature		Date

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application Serial No. 09/943,199
Filing Date August 29, 2001
Inventor Kristy A. Campbell, et al.
Assignee Micron Technology, Inc.
Group Art Unit 2818
Examiner Unassigned
Attorney's Docket No. MI22-1672
Title: Method of Forming Non-Volatile Resistance Variable Devices

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

References -- See Attached Form PTO-1449

In compliance with 37 C.F.R. §§ 1.56, 1.97 and 1.98, your attention is directed to the reference listed on the attached Form PTO-1449, and a copy of which is attached. No admission is made regarding whether the submitted reference is prior art.

This Information Disclosure Statement is being filed before the mailing of a first Office Action, therefore, no fee is believed to be required. However, in the event that a fee is required for filing this Information Disclosure Statement, please charge the fee specified under 37 C.F.R. §1.17(p) to Deposit Account No. 23-0925. Please credit Deposit Account No. 23-0925 with any overpayment of the above fee.

Citation of this reference is respectfully requested.

Respectfully submitted,

Dated: 12-5-01

By: 
Mark S. Matkin
Reg. No. 32,268

Form PTO-1449 <i>SEP 8 9 2004</i> U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE LIST OF ART CITED BY APPLICANT <small>(Use several sheets if necessary)</small>					ATTY. DOCKET NO. MI22-1672	SERIAL NO. 09/943,199		
					APPLICANT Kristy A. Campbell, et al.			
					FILING DATE August 29, 2001	GROUP 2818		
U. S. PATENT DOCUMENTS								
*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
	AA							
	AB							
	AC							
	AD							
	AE							
	AF							
	AG							
	AH							
	AI							
	AJ							
	AK							
FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
	AL						Yes	No
	AM							
	AN							
	AO							
	AP							
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
	AR		D.B. Johnson, et al., "Lateral Diffusion in Ag-Se Thin-Film Couples", Journal of Applied Physics, Vol. 40, No. 1, January 1969, pps. 149-152.					
	AS							
	AT							
EXAMINER				DATE CONSIDERED				
<small>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</small>								



Inventors: Kristy A. Campbell, et al.

Atty Docket No.: M4065.0704/P704

Application No.: 09/942,199

Filing Date: August 29, 2001

Title: METHOD OF FORMING NON-VOLATILE RESISTANCE VARIABLE DEVICES

Documents Filed:

Information Disclosure Statement w/references



Via: PTO Daily Run

Date: November 20, 2002

Sender: TJD:PM:tj

RAW 11/20/02

28845 v1 - 0/00000000000000000000000000000000



Docket No.: M4065.0704/P704
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Kristy A. Campbell et al.

Application No.: 09/942,199

Group Art Unit: 2818

Filed: August 29, 2001

Examiner: David Vu

For: **METHOD OF FORMING NON-VOLATILE RESISTANCE VARIABLE DEVICES**

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
Washington, DC 20231

Dear Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the documents listed on the attached PTO/SB/08. It is respectfully requested that the subject matter of the documents be expressly considered during the prosecution of this application and that the documents be made of record therein and appear among the "References Cited" on any patent to issue form this application. A copy of each document is attached.

A brief explanation of relevance of the non-patent documents listed on form PTO/SB/08 is provided and attached hereto as Appendix A. The brief explanation provided for each document is not tantamount to an admission that a document is "material" or that it qualifies as prior art. The Examiner is respectfully requested to utilize Appendix A only as a tool by which to better categorize the documents for substantive use in examining the claims of the application.

Documents discussed in Appendix A marked with an asterisk (*) are indicated to be potentially more relevant than others. Such marking is provided only to assist the Examiner; however, the Examiner is requested to thoroughly review all documents cited herein.

In accordance with 37 C.F.R. § 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 C.F.R. § 1.56(a) exists. It is submitted that the Information Disclosure Statement is in compliance with 37 C.F.R. § 1.98 and the Examiner is respectfully requested to consider and cite the listed documents.

The Commissioner is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1073, under Order No. M4065.0704/P704.

Dated: November 20, 2002

Respectfully submitted,

By 
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APPENDIX A

Abdel-All, et al., Vacuum 59 (2000) 845-853: published in December, this document generally relates to, inter alia, the electrical properties of $\text{Ge}_5\text{As}_{38}\text{Te}_{57}$ as a function of temperature.

*Adler and Moss, J. Vac. Sci. Technol. 9 (1972) 1182-1189: this document generally relates to, inter alia, two types of electrical/material switching – threshold and memory, in amorphous materials; the effects of temperature, pressure, and frequency on switching; and the physics of threshold voltage and memory.

Adler et al., Ref. Mod. Phys. 50 (1978) 209-220: this document generally relates to, inter alia, threshold switching in amorphous alloys, state (“on” and “off”) characteristics, and glass properties.

Afifi, et al., Appl. Phys. A 55 (1992) 167-169: this document generally relates to, inter alia, SeGe-Sb glasses.

*Afifi, et al., J. Phys. 17 (1986) 335-342: this document generally relates to, inter alia, electrical and thermal conductivity of $\text{Ge}_x\text{Se}_{1-x}$ compositions as a function of temperature. $\text{Ge}_{25}\text{Se}_{75}$ stoichiometry is disclosed.

Alekperova and Gadzhieva, 23 (1987) 137-139: this document generally relates to, inter alia, a characteristic diode state in Ag_2Se compositions upon heating (to 376-400°K).

*Aleksiejunas and Cesnys, Phys. Stat. Sol. (a) 19 (1973) K169-K171: this document generally relates to, inter alia, the subjects of selenium investigation and how $\text{Se}-\text{Ag}_2\text{Se}$ contributes silver ions to a selenium composition.

Angell, Annu. Rev. Phys. Chem. 43 (1992) 693-717: this document generally relates to, inter alia, the presence of ion conductors in solids.

Aniya, Solid State Ionics 136-137 (November 2,2000) 1085-1089: this document generally relates to, inter alia, ion conductor glasses.

Asahara and Izumitani, J. Non-Cryst. Solids 11 (1972) 97-104: this document generally relates to, inter alia, Cu-As-Se glass.

Asokan, et al., Phys. Rev. Lett. 62 (1989) 808-810: this document generally relates to, inter alia, $\text{Ge}_x\text{Se}_{100-x}$ glasses and their transition from semiconductor-like material to metal-like material.

Baranovskii and Cordes, J. Chem. Phys. 111 (1999) 7546-7557: this document generally relates to, inter alia, ionic glasses and conduction (percolation theory).

Belin et al., Sol. St. Ionics 136-137 (November 2,2000) 1025-1029: this document generally relates to, inter alia, conductivity spectra of the glass $0.5\text{Ag}_2\text{S}-0.5\text{GeS}_2$ and the temperature dependency of the conductivity.

Belin, et al., Solid State Ionics 143 (July 2,2001) 445-455: this document generally relates to, inter alia, the electrical properties of $\text{Ag}_3\text{GeSe}_5\text{I}$ – an argyrodite compound.

Benmore and Salmon, Phys. Rev. Lett. 73 (1994) 264-267: this document generally relates to, inter alia, the characteristics of chalcogenide alloys.

Bernede, Thin Solid Films 70 (1980) L1-L4: this document is in the French language and the Applicant has no translation. It is presently understood to generally relate to, inter alia, metal- Ag_2Se -metal sandwich devices.

Bernede, Thin Solid Films 81 (1981) 155-160: this document generally relates to, inter alia, memories of selenium alloys with metal (e.g., Ag) electrodes, where the “on” memory states require constant voltage.

Bernede, Phys. Stat. Sol. (a) 57 (1980) K101-K104: this document generally relates to, inter alia, metal-Ag₂Se-P systems.

Bernede and Abachi, Thin Solid Films 131 (1985) L61-L64: this document generally relates to, inter alia, metal-insulator-metal thin films with electroforming effects; the films have silver, gold and copper electrodes.

*Bernede, et al., Thin Solid Films 97 (1982) 165-171: this document generally relates to, inter alia, Ag₂Se/Se/Metal thin film sandwiches, which were studied by shape of electrodes (e.g., symmetrical or asymmetrical).

Bernede, et al., Phys. Stat. Sol. (a) 74 (1982) 217-224: this document generally relates to, inter alia, switching in Al-Al₂O₃Ag_{2-x}Se_{1+x} devices.

Bondarev and Pikhitsa, Solid State Ionics 70/71 (1994) 72-76: this document generally relates to, inter alia, Ag⁽⁺⁾/RbAg₄I₅ boundary – depletion layer, and dendritic electrodeposition.

*Boolchand, Asian Journal of Physics (2000) 9, 709-72: this document generally relates to, inter alia, Ge_xSe_{1-x} glasses, which have selenium-rich and germanium-rich clusters, and the intrinsically-broken bond characteristics thereof.

*Boolchand and Bresser, Nature 410 (2001) 1070-1073: published April 26, this document generally relates to, inter alia, Ag₂Se as an electrolyte additive to glass, e.g., GeSe₄. Ge₃₀Se₇₀ glass was found not to work well because of Ag₂Se crystallization.

*Boolchand, et al., J. Optoelectronics and Advanced Materials, 3 (September 2001), 703: this document generally relates to, inter alia, a review of Raman tool scattering of chalcogenide glasses. The floppiness and rigidness is observed. Ge_xSe_{1-x} is disclosed, as is a stoichiometry of Ge₂₅Se₇₅.

Boolchand and Grothaus, Eds. Chadi and Harrison, Proc. Int. Conf. Phys, Semicond., 17th (1985) 833-36: this document generally relates to, inter alia, GeSe and GeS glasses and the importance of a broken chemical order therein.

*Boolchand, et al., Properties and Applications of Amorphous Materials, M.F. Thorpe and Tichy, L. (eds.) Kluwer Academic Publishers, the Netherlands, 2001, pp. 97-132: this document generally relates to, inter alia, the prediction of glass rigidity in Ge_xSe_{1-x} glass, e.g., $Ge_{23}Se_{77}$.

*Boolchand, et al., Diffusion and Defect Data, Vol. 53-54 (1987) 415-420: this document generally relates to, inter alia, thermal annealing of Ge_xSe_{1-x} films.

*Boolchand, et al., Phys. Rev. B 25 (1982) 2975-2978: this document generally relates to, inter alia, the examination of GeSe glass having Sn impurities by Mossbauer spectroscopy. Investigations into glass network topology, which has an intrinsically broken bond backbone, suggesting Ge and Se rich clusters.

Boolchand, et al., Sol. State Comm. 45 (1983) 183-185: this document generally relates to, inter alia, Ge_xSe_{1-x} and Ge_xS_{1-x} glasses.

*Boolchand and Bresser, Dep. Of ECECS, Univ. Cincinnati 45221-0030: this document generally relates to, inter alia, Ge_xSe_{1-x} and the relation of glass transition temperature to Ge concentration in backbone. Although the publication date of this reference is not known to the Applicant, it was revised October 28, 1999 and is believed to be publicly available at the University of Cincinnati, Department of Electrical and Computer Engineering and Computer Science.

Bresser, et al., Phys. Rev. Lett. 56 (1986) 2493-2496: this document generally relates to, inter alia, an investigation of c-GeSe₂ structure.

Bresser, et al., J. de Physique 42 (1981) C4-193-C4-196: this document generally relates to, inter alia, the characteristics of GeSe₂ and GeS₂ glasses.

Bresser, et al., Hyperfine Interactions 27 (1986) 389-392: this document generally relates to, inter alia, germanium selenide glasses doped with tellurium.

Cahen, et al., Science 258 (1992) 271-274: this document generally relates to, inter alia, chalcopyrite CuInSe₂ glasses.

Chatterjee, et al., J. Phys. D: Appl. Phys. 27 (1994) 2624-2627: this document generally relates to, inter alia, As_xTe_{100-x,y}Se_y glasses and the current, voltage, and electrical switching behavior. Discloses applicability in read mostly memories.

*Chen and Tai, Appl. Phys. Lett. 37 (1980) 1075-1077: this document generally relates to, inter alia, silver photodoping of Ge_xSe_{1-x} and whisker formation (crystalline Ag₂Se).

Chen and Cheng, J. Am. Ceram. Soc. 82 (1999) 2934-2936: this document generally relates to, inter alia, germanium containing chalcogenides doped with Si₃N₄.

Chen, et al., J. Non-Cryst. Solids 220 (1997) 249-253: this document generally relates to, inter alia, As₁₀Ge₃₀Se₆₀ glasses (and the like) doped with Si₃N₄.

Cohen, et al., J. Non-Cryst. Solids 8-10 (1972) 885-891: this document generally relates to, inter alia, Ge-Te-X glasses as memory devices.

Croitoru, et al., J. Non-Cryst. Solids 8-10 (1972) 781-786: this document generally relates to, inter alia, the physics of conductivity in Ge-containing films.

Dalven and Gill, J. Appl. Phys. 38 (1967) 753-756: this document generally relates to, inter alia, beta-Ag₂Te.

Davis, Search 1 (1970) 152-155: this document generally relates to, inter alia, the subject of amorphous semiconductors as compared to glass.

*Dearnaley, et al., Rep. Prog. Phys. 33 (1970) 1129-1191: this document generally relates to, inter alia, background information about glass and memory.

*Dejus, et al., J. Non-Cryst. Solids 143 (1992) 162-180: this document generally relates to, inter alia, Ag-Ge-Se glass with Ag primarily bonded to Se. The reference discloses glass preparation.

den Boer, Appl. Phys. Lett. 40 (1982) 812-813: this document generally relates to, inter alia, a-Si:H sandwich structures and threshold switching from a low to high conductance.

Drusedau, et al., J. Non-Cryst. Solids 198-200 (1996) 829-832: this document generally relates to, inter alia, work with a-Si:H multilayers optoelectrical properties.

El Bouchairi, et al., Thin Solid Films 110 (1983) 107-113: this document generally relates to, inter alia, $\text{Ag}_{2-x}\text{Se}_{1+x}$ thin film electrical characteristics and metal-like conduction.

El Gharris, et al., J. Non-Cryst. Solids 155 (1993) 171-179: this document generally relates to, inter alia, photoconductivity of amorphous Se and Ge-Se alloy evaporated films, and reduction of photocurrent by increase of Ge content.

*El Ghrandi, et al., Thin Solid Films 218 (1992) 259-273: this document generally relates to, inter alia, GeSe films deposited by PECVD, Ag evaporation deposition onto glass and photodissolution into same, and optical properties are investigated. GeSe stoichiometries of 30/70 and 25/75, respectively, are disclosed.

*El Ghrandi, et al., Phys. Stat. Sol. (a) 123 (1991) 451-460: this document generally relates to, inter alia, dissolution of Ag into GeSe_{5.5} glass by flash evaporation.

El-kady, Indian J. Phys. 70 A (1996) 507-516: this document generally relates to, inter alia, Ge₂₁Se₁₇Te₆₂ glass and memory, switching, and current controlled negative resistance.

Elliott, J. Non-Cryst. Solids 130 (1991) 85-97: this document generally relates to, inter alia, mechanisms of photodissolution of metals (e.g., Ag) in chalcogenides based on ionic and electronic charge carriers.

*Elliott, J. Non-Cryst. Sol. 130 (1991) 1031-1034: this document generally relates to, inter alia, the photodissolution of metals (e.g, Ag) in chalcogenide glasses and the physics thereof.

Elsamanoudy, et al., Vacuum 46 (1995) 701-707: this document generally relates to, inter alia, studies of quaternary chalcogenide films with Te-As-Ge-Si sandwich structures between electrodes.

*El-Zahed and El-Korashy, Thin Solid Films 376 (November 1,2000) 236-240: this document generally relates to, inter alia, Ge₂₀Bi_xSe_{80-x} film analysis regarding conduction and changes from p to n type.

Fadel, Vacuum 44 (1993) 851-855: this document generally relates to, inter alia, a study of the switching and memory characteristics of Se₇₅Ge_{25-x}As_x films.

*Fadel and El-Shair, Vacuum 43 (1992) 253-257: this document generally relates to, inter alia, Se₇₅Ge₇Sb₁₈ glass electrical conduction and thermal character.

Feng, et al., Phys. Rev. Lett. 78 (1997) 4422-4425: this document generally relates to, inter alia, germanium selenide and germanium sulfide materials.

*Feng, et al., J. Non-Cryst. Solids 222 (1997) 137-143: this document generally relates to, inter alia, the structural character of $\text{Ge}_x\text{S}_{1-x}$ glass, e.g., hardness and elasticity.

*Fischer-Colbrie, et al., Phys. Rev. B 38 (1988) 12388-12403: this document generally relates to, inter alia, photodiffused Ag-GeSe₂ and the interaction between doped Ag with Se atoms and Ge with Ge atoms.

Fleury, et al., Phys. Stat. Sol. (a) 64 (1981) 311-316: this document generally relates to, inter alia, amorphous selenium films and their conductance.

Fritzsche, J. Non-Cryst. Sol. 6 (1971) 49-71: this document generally relates to, inter alia, background information on chalcogenides as semiconductors.

Fritzsche, Annual Review of Mat. Sci. 2 (1972) 697-744: this document generally relates to, inter alia, background information on amorphous semiconductors.

Gates, et al., J. Am. Chem. Soc. (2001): this document generally relates to, inter alia, creating Ag₂Se nanowires by chemical reaction.

Gosain, et al., Jap. J. Appl. Phys. 28 (1989) 1013-1018: this document generally relates to, inter alia, germanium telluride glasses sandwiched in electrodes and the physics thereof.

*Guin et al., J. Non-Cryst. Sol. 298 (March 28, 2002) 260-269: this document generally relates to, inter alia, germanium selenide (GeSe) glass with low hardness, the mechanical properties of which are investigated. Stoichiometries of the glass are disclosed as being, inter alia, 10/90, 20/80, and 30/70, respectively.

*Guin et al., J. Am. Ceram. Soc. 85 (June 2002) 1545-1552: this document generally relates to, inter alia, germanium selenide glasses and a study of the hardness properties thereof. Glass stoichiometries of 40/60 and 20/80, respectively, are disclosed.

Gupta, J. Non-Cryst. Sol. 3 (1970) 148-154: this document generally relates to, inter alia, switching in chalcogenides.

Haberland and Stiegler, J. Non-Cryst. Solids 8-10 (1972) 408-414: this document generally relates to, inter alia, glasses containing Te, As, Ge, and Si, and pulse sequence and time factors in switching.

Haifz, et al., J. Apply. Phys. 54 (1983) 1950-1954: this document generally relates to, inter alia, As-Se-Cu glasses.

Hajto, et al., Int. J. Electronics 73 (1992) 911-913: this document generally relates to, inter alia, metal/a-Si:H/metal devices.

Hajto, et al., J. Non-Cryst. Solids 266-269 (May 1,2000) 1058-1061: this document generally relates to, inter alia, a-Si:H ion conductors, polarity-dependant digital and analogue memory, and dependency on contact metals.

Hajto, et al., J. Non-Cryst. Solids 198-200 (1996) 825-828: this document generally relates to, inter alia, electroformed V/a-Si:H/Cr devices.

Hajto, et al., Phil. Mag. B 63 (1991) 349-369: this document generally relates to, inter alia, p+ type amorphous Si memory structures with polarity dependent analogue switching.

Hayashi, et al., Japan. J. Appl. Phys. 13 (1974) 1163-1164: this document generally relates to, inter alia, Au-CdS(CdSe)-Au systems and metal-Se-Sn-SnO₂ systems.

*Hegab, et al., Vacuum 45 (1994) 459-462: this document generally relates to, inter alia, Ge₂₀M₇₅Sb₁₈ glass electrical conduction and thermal character.

Hirose and Hirose, J. Appl. Phys. 47 (1976) 2767-2772: this document generally relates to, inter alia, Ag photodoped As₂S₃, polarized switching, and dendrite formation.

Hong and Speyer, J. Non-Cryst. Solids 116 (1990) 191-200: this document generally relates to, inter alia, Cd-Ge-As glass with Ag contacts.

Hosokawa, J. Optoelectronics and Advanced Materials 3 (2001) 199-214: this document generally relates to, inter alia, x-ray scattering experiments on glassy Ge_xSe_{1-x}.

Hu, et al., J. Non-Cryst. Solids 227-230 (1998) 1187-1191: this document generally relates to, inter alia, a-Si:H with Cr and V electrodes.

Hu, et al., Phil. Mag. B. 74 (1996) 37-50: this document generally relates to, inter alia, a-Si:H glasses doped with Cr and analogue memory.

Hu, et al., Phil. Mag. B 80 (January 1, 2000) 29-43: this document generally relates to, inter alia, a-Si:H films doped with Cr-p+.

Iizima, et al., Solid State Comm. 8 (1970) 153-155: this document generally relates to, inter alia, switching and memory effects in As-Te-I^{1,2} and As-Te-Ge-Si³ glass systems. Thermal breakdown is proposed switching effect.

Ishikawa and Kikuchi, J. Non-Cryst. Solids 35 & 36 (1980) 1061-1066: this document generally relates to, inter alia, Ge₂S₂ films with Ag photodissolved therein.

*Iyetomi, et al., J. Non-Cryst. Solids 262 (February 2000) 135-142: this document generally relates to, inter alia, Ag/Ge/Se glasses as a composite of GeSe₂ and Ag₂Se (a fast ion conductor) and polarizability of Se ions.

Jones and Collins, Thin Solid Films 40 (1977) L15-L18: this document generally relates to, inter alia, switching in Se films and switching back with reverse pulse.

Joullie and Marucchi, Phys. Stat. Sol. (a) 13 (1972) K105-K109: this document generally relates to, inter alia, As₂Se₇ glass.

Joullie and Marucchi, Mat. Res. Bull. 8 (1973) 433-442: this document generally relates to, inter alia, As₂Se₅ film conduction and switching.

Kaplan and Adler, J. Non-Cryst. Solids 8-10 (1972) 538-543: this document generally relates to, inter alia, thermal effects on semiconductor switching.

*Kawaguchi, et al., J. Appl. Phys. 79 (1996) 9096-9104: this document generally relates to, inter alia, Ag-rich chalcogenide glass, Ge₃S₇-Ag and Ge₃₀Se₇₀-Ag, max Ag content of 67%, graphs phase diagram, and discloses that Ag works better than Cu.

*Kawaguchi and Masui, Jpn. J. Appl. Phys. 26 (1987) 15-21: this document generally relates to, inter alia, silver photodoping of chalcogenide films, e.g., Ge₃₀Se₇₀ films.

*Kawasaki, et al., Solid State Ionics 123 (1999) 259-269: this document generally relates to, inter alia, the electrical properties of Ag_x(GeSe₃)_{1-x}, conductivity EMF measurements, glass composition, X-ray diffraction, T_g and T_c, Ag ion transport, and glass structure.

*Kluge, et al., J. Non-Cryst. Solids 124 (1990) 186-193: this document generally relates to, inter alia, photodiffusion of silver into Ge_xSe_{100-x} layers, how this differs from ion beam induced diffusion, Ge₃₀Se₇₀ stoichiometry, Ag₂Se, and percolation threshold.

*Kolobov, J. Non-Cryst. Solids 198-200 (1996) 728-731: this document generally relates to, inter alia, p-type conductive chalcogenides, materials, and physics thereof.

*Kolobov, J. Non-Cryst. Solids 137-138 (1991) 1027-1030: this document generally relates to, inter alia, doped and undoped glass layers as a p-n junction.

Korkinova and Andreichin, J. Non-Cryst. Solids 194 (1996) 256-259: this document generally relates to, inter alia, polarization of chalcogenide glass as depending on the materials used for electrode contacts.

*Kotkata, et al., Thin Solid Films 240 (1994) 143-146: this document generally relates to, inter alia, GeSe glass switching and film thickness, memory, current filament, chemical and mechanical switching properties, and discloses that heat treatment or aging improves switching.

Lakshminarayan, et al., J. Instn. Electronics & Telecom. Engrs. 27 (1981) 16-19: this document generally relates to, inter alia, tellurium-containing chalcogenide glasses.

Lal and Goyal, Indian Journal of Pure & Appl. Phys. 29 (1991) 303-304: this document generally relates to, inter alia, theory on chalcogenide switching.

*Leimer et al., Phys. Stat. Sol. (a) 29 (1975) K129-K132: this document generally relates to, inter alia, germanium selenide glass polarization behavior, e.g., inductive and capacitive components.

*Leung, et al., Appl. Phys. Lett. 46 (1985) 543-545: this document generally relates to, inter alia, photoinduced diffusion of Ag into $\text{Ge}_x\text{Se}_{1-x}$ and techniques for same.

Matsushita, et al., Jap. J. Appl. Phys. 11 (1972) 1657-1662: this document generally relates to, inter alia, $\text{Se}-\text{SnO}_2$ film switching and reversibility.

Matsushita, et al., Jpn. J. Appl. Phys. 11 (1972) 606: this document generally relates to, inter alia, polarized memory effect in Se films.

Mazurier, et al., Journal de Physique IV 2 (1992) C2-185 - C2-188: this document generally relates to, inter alia, Te-based glasses.

Messoussi, et al., Mat. Chem. And Phys. 28 (1991) 253-258: this document generally relates to, inter alia, selenium films and Bi electrodes.

*Mitkova and Boolchand, J. Non-Cryst. Solids 240 (1998) 1-21: this document generally relates to, inter alia, the analysis of Group IV and V chalcogenides.

*Mitkova and Kozicki, J. Non-Cryst. Solids 299-302 (May 14, 2002) 1023-1027: this document generally relates to, inter alia, photodissolution of Ag into Se-rich Ge-Se glasses for use in memory devices. The information disclosed in this reference was available to and known by the inventors prior to the filing of the application.

*Mitkova, et al., Phys. Rev. Lett. 83 (1999) 3848-3851: this document generally relates to, inter alia, Ag doped chalcogenides, $\text{Ge}_{20}\text{Se}_{80}$ stoichiometry is disclosed, Se rich glasses, Ge rich glasses, stoichiometric glasses, and presence of Ag_2Se .

*Miyatani, J. Phys. Soc. Japan 34 (1973) 423-432: this document generally relates to, inter alia, electrical and ionic properties of solid solutions (e.g., doped glass), polarization, conductivity, Ag_2Se and Cu_2Se .

*Miyatani, J. Phys. Soc. Japan 14 (1959) 996-1002: this document generally relates to, inter alia, Ag_2Te and Ag_2Se ion conduction and the chemical potential of silver ions.

Mott, J. Non-Cryst. Sol. 1 (1968) 1-17: this document generally relates to, inter alia, glasses with vanadium or iron.

*Nakayama, et al., Jpn. J. Appl. Phys. 32 (1993) 564-569: this document generally relates to, inter alia, electrically erasable nonvolatile memories in chalcogenide films of $\text{As}_x\text{Sb}_y\text{Te}_z$, flash evaporative deposition techniques, a high set-voltage compared to read-voltage, V_t , creates a "filament," and refresh-type pulse.

*Nakayama, et al., Jpn. J. Appl. Phys. 39 (November 15, 2000) 6157-6161: this document generally relates to, inter alia, phase transition random access memory (PRAM) made of chalcogenide glass.

*Nang et al., Jap. J. App. Phys. 15 (1976) 849-853: this document generally relates to, inter alia, Ge_xSe_{1-x} electrical and optical properties; it also discloses $Ge_{.80}Se_{.20}$, $Ge_{.60}Se_{.40}$, and $Ge_{.50}Se_{.50}$.

Narayanan, et al., Phys. Rev. B 54 (1996) 4413-4415: this document generally relates to, inter alia, chalcogenide glass switching as thermally originated.

*Neale and Aseltine, , IEEE Transactions On Electron Dev. Ed-20 (1973) 195-209: this document generally relates to, inter alia, read mostly memories with chalcogenides (e.g., Ge, Te), also discloses “floating gate,” and material combinations including Ge and Se.

Ovshinsky and Fritzsche, Metallurgical Transactions 2 (1971) 641-645: this document generally relates to, inter alia, reversible changes in amorphous Si, Be, and B using a laser to write and erase.

Ovshinsky, Phys. Rev. Lett. 21 (1968) 1450-1453: this document generally relates to, inter alia, rapid and reversible resistive switching by electric field in amorphous semiconductors.

Owen, et al., IEE Proc. 129 (1982) 51-54: this document generally relates to, inter alia, a-Si:H, gold or aluminum dots and silver paste.

Owen, et al., Phil. Mag. B 52 (1985) 347-362: this document generally relates to, inter alia, photoinduced chalcogenide effects (As_2S_3) both reversible and irreversible.

*Owen, et al., Int. J. Electronics 73 (1992) 897-906: this document generally relates to, inter alia, threshold and memory switching a-Si:H ion conductor, polarity-dependant digital memory, analogue memory, and device operation dependency on metal contacts.

Pearson and Miller, App. Phys. Lett. 14 (1969) 280-282: this document generally relates to, inter alia, glass diodes.

*Pinto and Ramanathan, Appl. Phys. Lett. 19 (1971) 221-223: this document generally relates to, inter alia, electric field inducement of glass switching "filamentary" path.

Popescu, Solid-State Electronics 18 (1975) 671-681: this document generally relates to, inter alia, the physics of chalcogenide switching.

Popescu and Croitoru, J. Non-Cryst. Solids 8-10 (1972) 531-537: this document generally relates to, inter alia, switching behavior and thermal instability in chalcogenide glasses.

Popov, et al., Phys. Stat. Sol. (a) 44 (1977) K71-K73: this document generally relates to, inter alia, investigations into threshold and memory switching effects in amorphous selenium with electrodes of Ca, Ni, Ag, and Al.

*Prakash, et al., J. Phys. D: Appl. Phys. 29 (1996) 2004-2008: this document generally relates to, inter alia, switching of $\text{Ge}_{10}\text{As}_{45}\text{Te}_{45}$ glass, study of threshold voltage concept and switch back to off, suitability for read mostly memory.

Rahman and Sivarama, Mat. Sci. Eng. B12 (1992) 219-222: this document generally relates to, inter alia, chalcogenide glass with no exothermic crystallization reaction above T_g being of a threshold-switching type.

*Ramesh, et al., Appl. Phys. A 69 (1999) 421-425: this document generally relates to, inter alia, electrical switching in GeTe with Ag or Cu and thermal character investigations.

Rose, et al., J. Non-Cryst. Solids 115 (1989) 168-170: this document generally relates to, inter alia, a-Si with Cr or V contacts.

Rose et al., Mat. Res. Soc. Symp. Proc. V258 (1992) 1075-1080: this document generally relates to, inter alia, a-Si:H memory.

Schuocker and Rieder, J. Non-Cryst. Solids 29 (1978) 397-407: this document generally relates to, inter alia, As-Te-Ge film sandwiches with Molybdenum electrodes.

Sharma and Singh, Proc. Indian Natn. Sci. Acad. 46, A, (1980) 362-368: this document generally relates to, inter alia, evaporated Se films and their electrical conductivity.

*Sharma, Ind. J. Of Pure and Applied Phys. 35 (1997) 424-427: this document generally relates to, inter alia, n-type Ag₂Se and other material stoichiometries. The device conductivity is analyzed, as is the grain size as a factor in device ability to polarize.

Snell, et al., J. Non-Cryst. Solids 137-138 (1991) 1257-1262: this document generally relates to, inter alia, a-Si:H analogue memory by applying voltages of increasing magnitude.

Snell et al., Mat. Res. Soc. Symp. Proc. V 297 (1993) 1017-1021: this document generally relates to, inter alia, a-Si:H analogue memory.

Steventon, J. Phys. D: Appl. Phys. 8 (1975) L120-L122: this document generally relates to, inter alia, switching in chalcogenides, resistively changes, and formation of microfilaments at switch.

Steventon, J. Non-Cryst. Solids 21 (1976) 319-329: this document generally relates to, inter alia, chalcogenide switching with pulses and multiple pulse resetting.

Stocker, App. Phys. Lett. 15 (1969) 55-57: this document generally relates to, inter alia, switching character of bulk and thin film glasses.

Tanaka, Mod. Phys. Lett. B 4 (1990) 1373-1377: this document generally relates to, inter alia, photodoping mechanism and $\text{Ag}/\text{As}_{30}\text{Se}_{70}$.

Tanaka, et al., Solid State Comm. 8 (1970) 387-389: this document generally relates to, inter alia, thermal effect on switching in chalcogenides and As-Te-(Ge or Si).

*Thornburg, J. Elect. Mat. 2 (1973) 3-15: this document generally relates to, inter alia, division of chalcogenides into stoichiometric compounds with no changes upon crystallization, stoichiometric compounds with changes upon crystallization, and non-stoichiometric which phase separate on crystallization, As_2Se , and filament growth as a function of bias applied.

Thornburg, J. Non-Cryst. Solids 11 (1972) 113-120: this document generally relates to, inter alia, As_2Se_3 glass switching sandwich structure.

*Thornburg and White, (1972) 4609-4612: this document generally relates to, inter alia, precipitation of As particles out of As_2Se_3 glass and the alignment in a filament.

*Tichy and Ticha, J. Non-Cryst. Solids 261 (2000) 277-281: published in January, this document generally relates to, inter alia, $\text{Ge}_x\text{Se}_{1-x}$ glass forming ability and 20/80 respective stoichiometry.

Titus, et al., Phys. Rev. B 48 (1993) 14650-14652: this document generally relates to, inter alia, percolation and chemical thresholds of chalcogenide glass.

*Tranchant, et al., Proceedings of the 6th Riso International Symposium. 9-13 September 1985: this document generally relates to, inter alia, GeSe glass with Ag, silver photodissolution, and generation of Ag_2Se .

Tregouet and Bernede, Thin Solid Films 57 (1979) 49-54: this document generally relates to, inter alia, Ag_2Te glass characteristics.

Uemura, et al., J. Non-Cryst. Solids 117-118 (1990) 219-221: this document generally relates to, inter alia, Ge_4Se_6 raman measurements and glass structure.

*Uttecht, et al., J. Non-Cryst. Solids 2 (1970) 358-370: this document generally relates to, inter alia, As-Te-Ge glass, V_t switching, filament formation, and reversal of voltage causes filament to grown in opposite direction.

Viger, et al., J. Non-Cryst. Solids 33 (1976) 267-272: this document generally relates to, inter alia, Se films dark-conductivity and photoconductivity.

*Vodenicharov, et al., Mat. Chem. and Phys. 21 (1989) 447-454: this document generally relates to, inter alia, M-GeSe-M films investigation for dc conductivity.

Wang, et al., IEEE Electron Dev. Lett. 13 (1992) 471-472: this document generally relates to, inter alia, antifuses.

Weirauch, App. Phys. Lett. 16 (1970) 72-73: this document generally relates to, inter alia, chalcogenide device resistively changes in high electric fields.

*West, Ph.D. Dissertation, ASU 1998: this document generally relates to, inter alia, metal dendrite memory with Ag or Cu doped solid electrolyte, photodissolution of Ag into As_2S_3 glass, lateral devices with silver electrodes, vertical devices with Ag electrodes, write voltages and lesser read voltages, and pinpoint electrode surrounded by ring

electrode. Although the exact publication date for this document is not known, it is believed to be available at Arizona State University.

Zhang, et al., J. Non-Cryst. Solids 151 (1992) 149-154: this document generally relates to, inter alia, T_g investigation for glasses.

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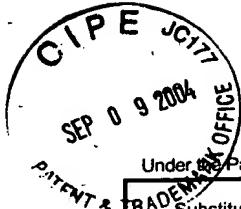
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Application Number	09/943,199
Filing Date	August 29, 2001
First Named Inventor	Kristy A. Campbell, et al.
Art Unit	2818
Examiner Name	David Vu
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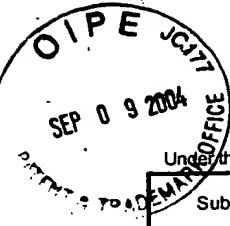
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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials'	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, page(s), volume-issue number(s), publisher, city and/or country where published.	^{T²}
	CA	Abdel-All, A.; Elshafie,A.; Elhawary, M.M., DC electric-field effect in bulk and thin-film Ge5As38Te57 chalcogenide glass, Vacuum 59 (2000) 845-853.	
	CB	Adler, D.; Moss, S.C., Amorphous memories and bistable switches, J. Vac. Sci. Technol. 9 (1972) 1182-1189.	
	CC	Adler, D.; Henisch, H.K.; Mott, S.N., The mechanism of threshold switching in amorphous alloys, Rev. Mod. Phys. 50 (1978) 209-220.	
	CD	Afifi, M.A.; Labib, H.H.; El-Fazary, M.H.; Fadel, M., Electrical and thermal properties of chalcogenide glass system Se75Ge25-xSbx, Appl. Phys. A 55 (1992) 167-169.	
	CE	Afifi,M.A.; Labib, H.H.; Fouad, S.S.; El-Shazly, A.A., Electrical & thermal conductivity of the amorphous semiconductor GexSe1-x, Egypt, J. Phys. 17 (1986) 335-342.	
	CF	Alekperova, Sh.M.; Gadzhieva, G.S., Current-Voltage characteristics of Ag2Se single crystal near the phase transition, Inorganic Materials 23 (1987) 137-139.	
	CG	Aleksiejunas, A.; Cesnys, A., Switching phenomenon and memory effect in thin-film heterojunction of polycrystalline selenium-silver selenide, Phys. Stat. Sol. (a) 19 (1973) K169-K171.	
	CH	Angell, C.A., Mobile ions in amorphous solids, Annu. Rev. Phys. Chem. 43 (1992) 693-717.	
	CI	Aniya, M., Average electronegativity, medium-range-order, and ionic conductivity in superionic glasses, Solid state Ionics 136-137 (2000) 1085-1089.	
	CJ	Asahara, Y.; Izumitani, T., Voltage controlled switching in Cu-As-Se compositions, J. Non-Cryst. Solids 11 (1972) 97-104.	
	CK	Asokan, S.; Prasad, M.V.N.; Parthasarathy, G.; Gopal, E.S.R., Mechanical and chemical thresholds in IV-VI chalcogenide glasses, Phys. Rev. Lett. 62 (1989) 808-810	
	CL	Baranovskii, S.D.; Cordes, H., On the conduction mechanism in ionic glasses, J. Chem. Phys. 111 (1999) 7546-7557.	
	CM	Belin, R.; Taillades, G.; Pradel, A.; Ribes, M., Ion dynamics in superionic chalcogenide glasses: complete conductivity spectra, Solid state Ionics 136-137 (2000) 1025-1029.	
	CN	Belin, R.; Zerouale, A.; Pradel, A.; Ribes, M., Ion dynamics in the argyrodite compound Ag7GeSe5: non-Arrhenius behavior and complete conductivity spectra, Solid State Ionics 143 (2001) 445-455.	
	CO	Benmore, C.J.; Salmon, P.S., Structure of fast ion conducting and semiconducting glassy chalcogenide alloys, Phys. Rev. Lett. 73 (1994) 264-267.	
	CP	Bernede, J.C., Influence du metal des electrodes sur les caracteristiques courant-tension des structures M-Ag2Se-M, Thin solid films 70 (1980) L1-L4.	
	CQ	Bernede, J.C., Polarized memory switching in MIS thin films, Thin Solid Films 81 (1981) 155-160.	
	CR	Bernede, J.C., Switching and silver movements in Ag2Se thin films, Phys. Stat. Sol. (a) 57 (1980) K101-K104.	
	CS	Bernede, J.C.; Abachi, T., Differential negative resistance in metal/insulator/metal structures with an upper bilayer electrode, Thin solid films 131 (1985) L61-L64.	
	CT	Bernede, J.C.; Conan, A.; Fousenan't, E.; El Bouchairi, B.; Goureaux, G., Polarized memory switching effects in Ag2Se/Se/M thin film sandwiches, Thin solid films 97 (1982) 165-171.	
	CU	Bernede, J.C.; Khelil, A.; Kettaf, M.; Conan, A., Transition from S- to N-type differential negative resistance in Al-Al2O3-Ag2-xSe1+x thin film structures, Phys. Stat. Sol. (a) 74 (1982) 217-224.	
	CV	Bondarev, V.N.; Pikhitsa, P.V., A dendrite model of current instability in RbAg4I5, Solid State Ionics 70/71 (1994) 72-76.	
	CW	Boolchand, P., The maximum in glass transition temperature (Tg) near x=1/3 in GexSe1-x	



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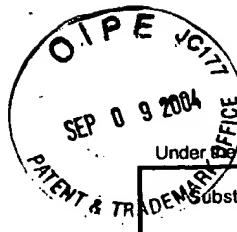
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				Group Art Unit	
				Examiner Name	
Sheet	3	of	8	Attorney Docket Number	

	Glasses, Asian Journal of Physics (2000) 9, 709-72.
CX	Boolchand, P.; Bresser, W.J., Mobile silver ions and glass formation in solid electrolytes, Nature 410 (2001) 1070-1073.
CY	Boolchand, P.; Georgiev, D.G.; Goodman, B., Discovery of the Intermediate Phase in Chalcogenide Glasses, J. Optoelectronics and Advanced Materials, 3 (2001), 703
CZ	Boolchand, P.; Selvanathan, D.; Wang, Y.; Georgiev, D.G.; Bresser, W.J., Onset of rigidity in steps in chalcogenide glasses, Properties and Applications of Amorphous Materials, M.F. Thorpe and Tichy, L. (eds.) Kluwer Academic Publishers, the Netherlands, 2001, pp. 97-132.
CA1	Boolchand, P.; Enzweiler, R.N.; Tenhover, M., Structural ordering of evaporated amorphous chalcogenide alloy films: role of thermal annealing, Diffusion and Defect Data Vol. 53-54 (1987) 415-420.
CB1	Boolchand, P.; Grothaus, J.; Bresser, W.J.; Suranyi, P., Structural origin of broken chemical order in a GeSe2 glass, Phys. Rev. B 25 (1982) 2975-2978.
CC1	Boolchand, P.; Grothaus, J.; Phillips, J.C., Broken chemical order and phase separation in Ge _x Se _{1-x} glasses, Solid state comm. 45 (1983) 183-185.
CD1	Boolchand, P., Bresser, W.J., Compositional trends in glass transition temperature (T _g), network connectivity and nanoscale chemical phase separation in chalcogenides, Dept. of ECECS, Univ. Cincinnati (October 28, 1999) 45221-0030.
CE1	Boolchand, P.; Grothaus, J., Molecular Structure of Melt-Quenched GeSe2 and GeS2 glasses compared, Proc. Int. Conf. Phys. Semicond. (Eds. Chadi and Harrison) 17 th (1985) 833-36.
CF1	Bresser, W.; Boolchand, P.; Suranyi, P., Rigidity percolation and molecular clustering in network glasses, Phys. Rev. Lett. 56 (1986) 2493-2496.
CG1	Bresser, W.J.; Boolchand, P.; Suranyi, P.; de Neufville, J.P., Intrinsically broken chalcogen chemical order in stoichiometric glasses, Journal de Physique 42 (1981) C4-193-C4-196.
CH1	Bresser, W.J.; Boolchand, P.; Suranyi, P.; Hernandez, J.G., Molecular phase separation and cluster size in GeSe2 glass, Hyperfine Interactions 27 (1986) 389-392.
CI1	Cahen, D.; Gilet, J.-M.; Schmitz, C.; Chernyak, L.; Gartsman, K.; Jakubowicz, A., Room-Temperature, electric field induced creation of stable devices in CuInSe2 Crystals, Science 258 (1992) 271-274.
CJ1	Chatterjee, R.; Asokan, S.; Titus, S.S.K., Current-controlled negative-resistance behavior and memory switching in bulk As-Te-Se glasses, J. Phys. D: Appl. Phys. 27 (1994) 2624-2627.
CK1	Chen, C.H.; Tai, K.L., Whisker growth induced by Ag photodoping in glassy Ge _x Se _{1-x} films, Appl. Phys. Lett. 37 (1980) 1075-1077.
CL1	Chen, G.; Cheng, J., Role of nitrogen in the crystallization of silicon nitride-doped chalcogenide glasses, J. Am. Ceram. Soc. 82 (1999) 2934-2936.
CM1	Chen, G.; Cheng, J.; Chen, W., Effect of Si ₃ N ₄ on chemical durability of chalcogenide glass, J. Non-Cryst. Solids 220 (1997) 249-253.
CN1	Cohen, M.H.; Neale, R.G.; Paskin, A., A model for an amorphous semiconductor memory device, J. Non-Cryst. Solids 8-10 (1972) 885-891.
CO1	Croitoru, N.; Lazarescu, M.; Popescu, C.; Telnic, M.; and Vescan, L., Ohmic and non-ohmic conduction in some amorphous semiconductors, J. Non-Cryst. Solids 8-10 (1972) 781-786.
CP1	Dalven, R.; Gill, R., Electrical properties of beta-Ag ₂ Te and beta-Ag ₂ Se from 4.2 to 300K, J. Appl. Phys. 38 (1967) 753-756.
CQ1	Davis, E.A., Semiconductors without form, Search 1 (1970) 152-155.
CR1	Dearnaley, G.; Stoneham, A.M.; Morgan, D.V., Electrical phenomena in amorphous oxide films, Rep. Prog. Phys. 33 (1970) 1129-1191.
CS1	Dejus, R.J.; Susman, S.; Volin, K.J.; Montague, D.G.; Price, D.L., Structure of Vitreous Ag-Ge-Se, J. Non-Cryst. Solids 143 (1992) 162-180.
CT1	den Boer, W., Threshold switching in hydrogenated amorphous silicon, Appl. Phys. Lett. 40 (1982) 812-813.
CU1	Drusedau, T.P.; Panckow, A.N.; Klabunde, F., The hydrogenated amorphous



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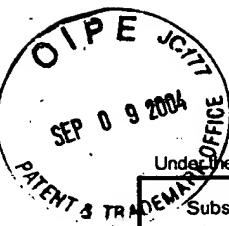
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				First Named Inventor	
				Group Art Unit	
				Examiner Name	
Sheet	4	of	8	Attorney Docket Number	

		silicon/nanodisperse metal (SIMAL) system-Films of unique electronic properties, <i>J. Non-Cryst. Solids</i> 198-200 (1996) 829-832.
CV1	El Bouchairi, B.; Bermede, J.C.; Burgaud, P., Properties of Ag _{2-x} Se _{1+x} /n-Si diodes, <i>Thin Solid Films</i> 110 (1983) 107-113.	
CW1	El Gharra, Z.; Bourahla, A.; Vautier, C., Role of photoinduced defects in amorphous Ge _x Se _{1-x} photoconductivity, <i>J. Non-Cryst. Solids</i> 155 (1993) 171-179.	
CX1	El Ghundi, R.; Calas, J.; Galibert, G.; Averous, M., Silver photodissolution in amorphous chalcogenide thin films, <i>Thin Solid Films</i> 218 (1992) 259-273.	
CY1	El Ghundi, R.; Calas, J.; Galibert, G., Ag dissolution kinetics in amorphous GeSe5.5 thin films from "in-situ" resistance measurements vs time, <i>Phys. Stat. Sol. (a)</i> 123 (1991) 451-460.	
CZ1	El-kady, Y.L., The threshold switching in semiconducting glass Ge ₂₁ Se ₁₇ Te ₆₂ , <i>Indian J. Phys.</i> 70A (1996) 507-516.	
CA2	Elliott, S.R., A unified mechanism for metal photodissolution in amorphous chalcogenide materials, <i>J. Non-Cryst. Solids</i> 130 (1991) 85-97.	
CB2	Elliott, S.R., Photodissolution of metals in chalcogenide glasses: A unified mechanism, <i>J. Non-Cryst. Solids</i> 137-138 (1991) 1031-1034.	
CC2	Elsamanoudy, M.M.; Hegab, N.A.; Fadel, M., Conduction mechanism in the pre-switching state of thin films containing Te As Ge Si, <i>Vacuum</i> 46 (1995) 701-707.	
CD2	El-Zahed, H.; El-Korashy, A., Influence of composition on the electrical and optical properties of Ge ₂₀ BixSe _{80-x} films, <i>Thin Solid Films</i> 376 (2000) 236-240.	
CE2	Fadel, M., Switching phenomenon in evaporated Se-Ge-As thin films of amorphous chalcogenide glass, <i>Vacuum</i> 44 (1993) 851-855.	
CF2	Fadel, M.; El-Shair, H.T., Electrical, thermal and optical properties of Se ₇₅ Ge ₇ Sb ₁₈ , <i>Vacuum</i> 43 (1992) 253-257.	
CG2	Feng, X.; Bresser, W.J.; Boolchand, P., Direct evidence for stiffness threshold in Chalcogenide glasses, <i>Phys. Rev. Lett.</i> 78 (1997) 4422-4425.	
CH2	Feng, X.; Bresser, W.J.; Zhang, M.; Goodman, B.; Boolchand, P., Role of network connectivity on the elastic, plastic and thermal behavior of covalent glasses, <i>J. Non-Cryst. Solids</i> 222 (1997) 137-143.	
CI2	Fischer-Colbrie, A.; Bienenstock, A.; Fuoss, P.H.; Marcus, M.A., Structure and bonding in photodiffused amorphous Ag-GeSe ₂ thin films, <i>Phys. Rev. B</i> 38 (1988) 12388-12403.	
CJ2	Fleury, G.; Hamou, A.; Viger, C.; Vautier, C., Conductivity and crystallization of amorphous selenium, <i>Phys. Stat. Sol. (a)</i> 64 (1981) 311-316.	
CK2	Fritzsche, H., Optical and electrical energy gaps in amorphous semiconductors, <i>J. Non-Cryst. Solids</i> 6 (1971) 49-71.	
CL2	Fritzsche, H., Electronic phenomena in amorphous semiconductors, <i>Annual Review of Materials Science</i> 2 (1972) 697-744.	
CM2	Gates, B.; Wu, Y.; Yin, Y.; Yang, P.; Xia, Y., Single-crystalline nanowires of Ag ₂ Se can be synthesized by templating against nanowires of trigonal Se, <i>J. Am. Chem. Soc.</i> (2001) currently ASAP.	
CN2	Gosain, D.P.; Nakamura, M.; Shimizu, T.; Suzuki, M.; Okano, S., Nonvolatile memory based on reversible phase transition phenomena in telluride glasses, <i>Jap. J. Appl. Phys.</i> 28 (1989) 1013-1018.	
CO2	Guin, J.-P.; Rouxel, T.; Keryvin, V.; Sangleboeuf, J.-C.; Serre, I.; Lucas, J., Indentation creep of Ge-Se chalcogenide glasses below T _g : elastic recovery and non-Newtonian flow, <i>J. Non-Cryst. Solids</i> 298 (2002) 260-269.	
CP2	Guin, J.-P.; Rouxel, T.; Sangleboeuf, J.-C.; Melscoet, I.; Lucas, J., Hardness, toughness, and scratchability of germanium-selenium chalcogenide glasses, <i>J. Am. Ceram. Soc.</i> 85 (2002) 1545-52.	
CQ2	Gupta, Y.P., On electrical switching and memory effects in amorphous chalcogenides, <i>J. Non-Cryst. Sol.</i> 3 (1970) 148-154.	

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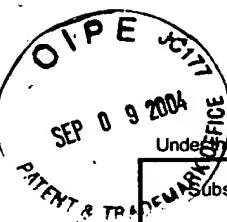
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			Complete If Known	
	Application Number			
	Filing Date			
	First Named Inventor			
	Group Art Unit			
	Examiner Name			
	CR2	Haberland, D.R.; Stiegler, H., New experiments on the charge-controlled switching effect in amorphous semiconductors, J. Non-Cryst. Solids 8-10 (1972) 408-414.		
	CS2	Haifz, M.M.; Ibrahim, M.M.; Dongol, M.; Hammad, F.H., Effect of composition on the structure and electrical properties of As-Se-Cu glasses, J. Appl. Phys. 54 (1983) 1950-1954.		
	CT2	Hajto, J.; Rose, M.J.; Osborne, I.S.; Snell, A.J.; Le Comber, P.G.; Owen, A.E., Quantization effects in metal/a-Si:H/metal devices, Int. J. Electronics 73 (1992) 911-913.		
	CU2	Hajto, J.; Hu, J.; Snell, A.J.; Turvey, K.; Rose, M., DC and AC measurements on metal/a-Si:H/metal room temperature quantised resistance devices, J. Non-Cryst. Solids 266-269 (2000) 1058-1061.		
	CV2	Hajto, J.; McAuley, B.; Snell, A.J.; Owen, A.E., Theory of room temperature quantized resistance effects in metal-a-Si:H-metal thin film structures, J. Non-Cryst. Solids 198-200 (1996) 825-828.		
	CW2	Hajto, J.; Owen, A.E.; Snell, A.J.; Le Comber, P.G.; Rose, M.J., Analogue memory and ballistic electron effects in metal-amorphous silicon structures, Phil. Mag. B 63 (1991) 349-369.		
	CX2	Hayashi, T.; Ono, Y.; Fukaya, M.; Kan, H., Polarized memory switching in amorphous Se film, Japan. J. Appl. Phys. 13 (1974) 1163-1164.		
	CY2	Hegab, N.A.; Fadel, M.; Sedeek, K., Memory switching phenomena in thin films of chalcogenide semiconductors, Vacuum 45 (1994) 459-462.		
	CA3	Hong, K.S.; Speyer, R.F., Switching behavior in II-IV-V2 amorphous semiconductor systems, J. Non-Cryst. Solids 116 (1990) 191-200.		
	CB3	Hosokawa, S., Atomic and electronic structures of glassy GeSe _{1-x} around the stiffness threshold composition, J. Optoelectronics and Advanced Materials 3 (2001) 199-214.		
	CC3	Hu, J.; Snell, A.J.; Hajto, J.; Owen, A.E., Constant current forming in Cr/p+a-Si:H/V thin film devices, J. Non-Cryst. Solids 227-230 (1998) 1187-1191.		
	CD3	Hu, J.; Hajto, J.; Snell, A.J.; Owen, A.E.; Rose, M.J., Capacitance anomaly near the metal-non-metal transition in Cr-hydrogenated amorphous Si-V thin-film devices, Phil. Mag. B 74 (1996) 37-50.		
	CE3	Hu, J.; Snell, A.J.; Hajto, J.; Owen, A.E., Current-induced instability in Cr-p+a-Si:H-V thin film devices, Phil. Mag. B 80 (2000) 29-43.		
	CF3	Iizima, S.; Sugi, M.; Kikuchi, M.; Tanaka, K., Electrical and thermal properties of semiconducting glasses As-Te-Ge, Solid State Comm. 8 (1970) 153-155.		
	CG3	Ishikawa, R.; Kikuchi, M., Photovoltaic study on the photo-enhanced diffusion of Ag in amorphous films of Ge ₂ S ₃ , J. Non-Cryst. Solids 35 & 36 (1980) 1061-1066.		
	CH3	Iyetomi, H.; Vashishta, P.; Kalia, R.K., Incipient phase separation in Ag/Ge/Se glasses: clustering of Ag atoms, J. Non-Cryst. Solids 262 (2000) 135-142.		
	CI3	Jones, G.; Collins, R.A., Switching properties of thin selenium films under pulsed bias, Thin Solid Films 40 (1977) L15-L18.		
	CJ3	Joullie, A.M.; Marucchi, J., On the DC electrical conduction of amorphous As ₂ Se ₇ before switching, Phys. Stat. Sol. (a) 13 (1972) K105-K109.		
	CK3	Joullie, A.M.; Marucchi, J., Electrical properties of the amorphous alloy As ₂ Se ₅ , Mat. Res. Bull. 8 (1973) 433-442.		
	CL3	Kaplan, T.; Adler, D., Electrothermal switching in amorphous semiconductors, J. Non-Cryst. Solids 8-10 (1972) 538-543.		
	CM3	Kawaguchi, T.; Maruno, S.; Elliott, S.R., Optical, electrical, and structural properties of amorphous Ag-Ge-S and Ag-Ge-Se films and comparison of photoinduced and thermally induced phenomena of both systems, J. Appl. Phys. 79 (1996) 9096-9104.		
	CN3	Kawaguchi, T.; Masui, K., Analysis of change in optical transmission spectra resulting from Ag photodoping in chalcogenide film, Jpn. J. Appl. Phys. 26 (1987) 15-21.		
	CO3	Kawasaki, M.; Kawamura, J.; Nakamura, Y.; Aniya, M., Ionic conductivity of Ag _x (GeSe ₃) _{1-x} (0<=x<=0.571) glasses, Solid state Ionics 123 (1999) 259-269.		



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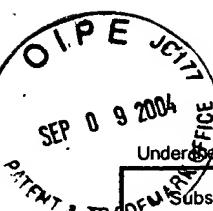
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Complete If Known		
Application Number		
Filing Date		
First Named Inventor		
Group Art Unit		
Examiner Name		
CP3	Kluge, G.; Thomas, A.; Klubes, R.; Grotzschel, R., Silver photodiffusion in amorphous GexSe100-x, J. Non-Cryst. Solids 124 (1990) 186-193.	
CQ3	Kolobov, A.V., On the origin of p-type conductivity in amorphous chalcogenides, J. Non-Cryst. Solids 198-200 (1996) 728-731.	
CR3	Kolobov, A.V., Lateral diffusion of silver in vitreous chalcogenide films, J. Non-Cryst. Solids 137-138 (1991) 1027-1030.	
CS3	Korkinova, Ts.N.; Andreichin, R.E., Chalcogenide glass polarization and the type of contacts, J. Non-Cryst. Solids 194 (1996) 256-259.	
CT3	Kotkata, M.F.; Afif, M.A.; Labib, H.H.; Hegab, N.A.; Abdel-Aziz, M.M., Memory switching in amorphous GeSeTi chalcogenide semiconductor films, Thin Solid Films 240 (1994) 143-146.	
CU3	Lakshminarayan, K.N.; Srivastava, K.K.; Panwar, O.S.; Dumar, A., Amorphous semiconductor devices: memory and switching mechanism, J. Instrn Electronics & Telecom. Engrs 27 (1981) 16-19.	
CV3	Lal, M.; Goyal, N., Chemical bond approach to study the memory and threshold switching chalcogenide glasses, Indian Journal of pure & appl. phys. 29 (1991) 303-304.	
CW3	Leimer, F.; Stotzel, H.; Kotwitz, A., Isothermal electrical polarisation of amorphous GeSe films with blocking Al contacts influenced by Poole-Frenkel conduction, Phys. Stat. Sol. (a) 29 (1975) K129-K132.	
CX3	Leung, W.; Cheung, N.; Neureuther, A.R., Photoinduced diffusion of Ag in GexSe1-x glass, Appl. Phys. Lett. 46 (1985) 543-545.	
CY3	Matsushita, T.; Yamagami, T.; Okuda, M., Polarized memory effect observed on Se-SnO2 system, Jap. J. Appl. Phys. 11 (1972) 1657-1662.	
CZ3	Matsushita, T.; Yamagami, T.; Okuda, M., Polarized memory effect observed on amorphous selenium thin films, Jpn. J. Appl. Phys. 11 (1972) 606.	
CA4	Mazurier, F.; Levy, M.; Souquet, J.L., Reversible and irreversible electrical switching in TeO2-V2O5 based glasses, Journal de Physique IV 2 (1992) C2-185 - C2-188.	
CB4	Messoussi, R.; Berneude, J.C.; Benhida, S.; Abachi, T.; Latif, A., Electrical characterization of M/Se structures (M=Ni,Bi), Mat. Chem. And Phys. 28 (1991) 253-258.	
CC4	Mitkova, M.; Boolchand, P., Microscopic origin of the glass forming tendency in chalcogenides and constraint theory, J. Non-Cryst. Solids 240 (1998) 1-21.	
CD4	Mitkova, M.; Kozicki, M.N., Silver incorporation in Ge-Se glasses used in programmable metallization cell devices, J. Non-Cryst. Solids 299-302 (2002) 1023-1027.	
CF4	Miyatani, S.-y., Electronic and ionic conduction in (AgxCu1-x)2Se, J. Phys. Soc. Japan 34 (1973) 423-432.	
CH4	Miyatani, S.-y., Ionic conduction in beta-Ag2Te and beta-Ag2Se, Journal Phys. Soc. Japan 14 (1959) 996-1002.	
CI4	Mott, N.F., Conduction in glasses containing transition metal ions, J. Non-Cryst. Solids 1 (1968) 1-17.	
CJ4	Nakayama, K.; Kitagawa, T.; Ohmura, M.; Suzuki, M., Nonvolatile memory based on phase transitions in chalcogenide thin films, Jpn. J. Appl. Phys. 32 (1993) 564-569.	
CK4	Nakayama, K.; Kojima, K.; Hayakawa, F.; Imai, Y.; Kitagawa, A.; Suzuki, M., Submicron nonvolatile memory cell based on reversible phase transition in chalcogenide glasses, Jpn. J. Appl. Phys. 39 (2000) 6157-6161.	
CL4	Nang, T.T.; Okuda, M.; Matsushita, T.; Yokota, S.; Suzuki, A., Electrical and optical parameters of GexSe1-x amorphous thin films, Jap. J. App. Phys. 15 (1976) 849-853.	
CM4	Narayanan, R.A.; Asokan, S.; Kumar, A., Evidence concerning the effect of topology on electrical switching in chalcogenide network glasses, Phys. Rev. B 54 (1996) 4413-4415.	
CN4	Neale, R.G.; Aseltine, J.A., The application of amorphous materials to computer memories, IEEE transactions on electron dev. Ed-20 (1973) 195-209.	
CO4	Ovshinsky S.R.; Fritzsche, H., Reversible structural transformations in amorphous semiconductors for memory and logic, Metallurgical transactions 2 (1971) 641-645.	

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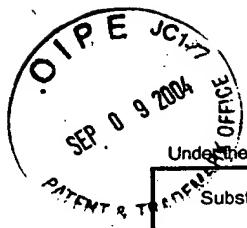
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Complete If Known		
	Application Number	
	Filing Date	
	First Named Inventor	
	Group Art Unit	
	Examiner Name	
CP4	Ovshinsky, S.R., Reversible electrical switching phenomena in disordered structures, Phys. Rev. Lett. 21 (1968) 1450-1453.	
CQ4	Owen, A.E.; LeComber, P.G.; Sarrabayrouse, G.; Spear, W.E., New amorphous-silicon electrically programmable nonvolatile switching device, IEE Proc. 129 (1982) 51-54	
CR4	Owen, A.E.; Firth, A.P.; Ewen, P.J.S., Photo-induced structural and physico-chemical changes in amorphous chalcogenide semiconductors, Phil. Mag. B 52 (1985) 347-362.	
CS4	Owen, A.E.; Le Comber, P.G.; Hajto, J.; Rose, M.J.; Snell, A.J., Switching in amorphous devices, Int. J. Electronics 73 (1992) 897-906.	
CT4	Pearson, A.D.; Miller, C.E., Filamentary conduction in semiconducting glass diodes, App. Phys. Lett. 14 (1969) 280-282.	
CU4	Pinto, R.; Ramanathan, K.V., Electric field induced memory switching in thin films of the chalcogenide system Ge-As-Se, Appl. Phys. Lett. 19 (1971) 221-223.	
CV4	Popescu, C., The effect of local non-uniformities on thermal switching and high field behavior of structures with chalcogenide glasses, Solid-state electronics 18 (1975) 671-681.	
CW4	Popescu, C.; Croitoru, N., The contribution of the lateral thermal instability to the switching phenomenon, J. Non-Cryst. Solids 8-10 (1972) 531-537.	
CX4	Popov, A.I.; Geller, I.KH.; Shemetova, V.K., Memory and threshold switching effects in amorphous selenium, Phys. Stat. Sol. (a) 44 (1977) K71-K73.	
CY4	Prakash, S.; Asokan, S.; Ghare, D.B., Easily reversible memory switching in Ge-As-Te glasses, J. Phys. D: Appl. Phys. 29 (1996) 2004-2008.	
CZ4	Rahman, S.; Sivarama Sastry, G., Electronic switching in Ge-Bi-Se-Te glasses, Mat. Sci. and Eng. B12 (1992) 219-222.	
CA5	Ramesh, K.; Asokan, S.; Sangunni, K.S.; Gopal, E.S.R., Electrical Switching in germanium telluride glasses doped with Cu and Ag, Appl. Phys. A 69 (1999) 421-425.	
CB5	Rose, M.J.; Hajto, J.; Lecomber, P.G.; Gage, S.M.; Choi, W.K.; Snell, A.J.; Owen, A.E., Amorphous silicon analogue memory devices, J. Non-Cryst. Solids 115 (1989) 168-170.	
CC5	Rose, M.J.; Snell, A.J.; Lecomber, P.G.; Hajto, J.; Fitzgerald, A.G.; Owen, A.E., Aspects of non-volatility in a -Si:H memory devices, Mat. Res. Soc. Symp. Proc. V 258, 1992, 1075-1080.	
CD5	Schuocker, D.; Rieder, G., On the reliability of amorphous chalcogenide switching devices, J. Non-Cryst. Solids 29 (1978) 397-407.	
CE5	Sharma, A.K.; Singh, B., Electrical conductivity measurements of evaporated selenium films in vacuum, Proc. Indian Natn. Sci. Acad. 46, A, (1980) 362-368.	
CF5	Sharma, P., Structural, electrical and optical properties of silver selenide films, Ind. J. Of pure and applied phys. 35 (1997) 424-427.	
CG5	Snell, A.J.; Lecomber, P.G.; Hajto, J.; Rose, M.J.; Owen, A.E.; Osborne, I.L., Analogue memory effects in metal/a-Si:H/metal memory devices, J. Non-Cryst. Solids 137-138 (1991) 1257-1262.	
CH5	Snell, A.J.; Hajto, J.; Rose, M.J.; Osborne, L.S.; Holmes, A.; Owen, A.E.; Gibson, R.A.G., Analogue memory effects in metal/a-Si:H/metal thin film structures, Mat. Res. Soc. Symp. Proc. V 297, 1993, 1017-1021.	
CI5	Steventon, A.G., Microfilaments in amorphous chalcogenide memory devices, J. Phys. D: Appl. Phys. 8 (1975) L120-L122.	
CJ5	Steventon, A.G., The switching mechanisms in amorphous chalcogenide memory devices, J. Non-Cryst. Solids 21 (1976) 319-329.	
CK5	Stocker, H.J., Bulk and thin film switching and memory effects in semiconducting chalcogenide glasses, App. Phys. Lett. 15 (1969) 55-57.	
CL5	Tanaka, K., Ionic and mixed conduction in Ag photodoping process, Mod. Phys. Lett B 4 (1990) 1373-1377.	
CM5	Tanaka, K.; Iizima, S.; Sugi, M.; Okada, Y.; Kikuchi, M., Thermal effects on switching phenomenon in chalcogenide amorphous semiconductors, Solid State Comm. 8 (1970) 387-389.	



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Sheet	8	of	8	Attorney Docket Number
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CN5	Thornburg, D.D., Memory switching in a Type I amorphous chalcogenide, J. Elect. Mat. 2 (1973) 3-15.
CO5	Thornburg, D.D., Memory switching in amorphous arsenic triselenide, J. Non-Cryst. Solids 11 (1972) 113-120.
CP5	Thornburg, D.D.; White, R.M., Electric field enhanced phase separation and memory switching in amorphous arsenic triselenide, Journal(??) (1972) 4609-4612.
CQ5	Tichy, L.; Ticha, H., Remark on the glass-forming ability in GexSe1-x and AsxSe1-x systems, J. Non-Cryst. Solids 261 (2000) 277-281.
CR5	Titus, S.S.K.; Chatterjee, R.; Asokan, S., Electrical switching and short-range order in As-Te glasses, Phys. Rev. B 48 (1993) 14650-14652.
CS5	Tranchant,S.;Peytavin,S.;Ribes,M.;Flank,A.M.;Dexpert,H.;Lagarde,J.P., Silver chalcogenide glasses Ag-Ge-Se: Ionic conduction and exafs structural investigation, Transport-structure relations in fast ion and mixed conductors Proceedings of the 6th Riso International symposium. 9-13 September 1985.
CT5	Tregouet, Y.; Berneude, J.C., Silver movements in Ag2Te thin films: switching and memory effects, Thin Solid Films 57 (1979) 49-54.
CU5	Uemura, O.; Kameda, Y.; Kokai, S.; Satow, T., Thermally induced crystallization of amorphous Ge0.4Se0.6, J. Non-Cryst. Solids 117-118 (1990) 219-221.
CV5	Uttecht, R.; Stevenson, H.; Sie, C.H.; Griener, J.D.; Raghavan, K.S., Electric field induced filament formation in As-Te-Ge glass, J. Non-Cryst. Solids 2 (1970) 358-370.
CD5	Viger, C.; Lefrancois, G.; Fleury, G., Anomalous behaviour of amorphous selenium films, J. Non-Cryst. Solids 33 (1976) 267-272.
CX5	Vodenicharov, C.; Parvanov,S.; Petkov,P., Electrode-limited currents in the thin-film M-GeSe-M system, Mat. Chem. And Phys. 21 (1989) 447-454.
CY5	Wang, S.-J.; Misium, G.R.; Camp, J.C.; Chen, K.-L.; Tigelaar, H.L., High-performance Metal/silicide antifuse, IEEE electron dev. Lett. 13 (1992)471-472.
CZ5	Weirauch, D.F., Threshold switching and thermal filaments in amorphous semiconductors, App. Phys. Lett. 16 (1970) 72-73.
CC6	Zhang, M.; Mancini, S.; Bresser, W.; Boolchand, P., Variation of glass transition temperature, Tg, with average coordination number, $\langle m \rangle$, in network glasses: evidence of a threshold behavior in the slope $ dTg/d\langle m \rangle $ at the rigidity percolation threshold ($\langle m \rangle = 2.4$), J. Non-Cryst. Solids 151 (1992) 149-154.

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